

12



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,580	09/15/2003	Jerry Dimsdale	KYRA-420	1307
28584	7590	09/08/2005	EXAMINER	
STALLMAN & POLLOCK LLP SUITE 2200 353 SACRAMENTO STREET SAN FRANCISCO, CA 94111			NGUYEN, PHU K	
			ART UNIT	PAPER NUMBER
			2673	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/662,580

Applicant(s)

DIMSDALE ET AL.

Examiner

Phu K. Nguyen

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.



PHU K. NGUYEN  
PRIMARY EXAMINER  
GROUP 2300

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2673

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by

DHOME (Hierarchical Approach For Polyhedra Recognition by Hypothesis Accumulation).

As per claim 17, Dhome teaches the claimed "method for merging a plurality of geometric primitives of a same type to form a single geometric primitive of the same type" (Dhome, the construction of a model based on the data points of the two plane surfaces; page 88, column 2, lines 4-26), said method comprising:

deriving a first geometric primitive of the plurality of geometric primitives (Dhome, a first plane surface of the scene local geometrical pattern; figure 2 and page 88, column 2, lines 43-52) such that the first geometric primitive references a first group of scanned surface data points from which the first geometric primitive was derived (Dhome, the derivation of the first plane; page 89, column 1, lines 10-21);

deriving a second geometric primitive of the plurality of geometric primitives (Dhome, a second plane surface of the scene local geometrical pattern; figure 2 and page 88, column 2, lines 43-52) such that the second geometric primitive references a second group of scanned surface data points from which the second geometric primitive was derived (Dhome, the derivation of the second plane; page 89, column 1, lines 10-21);

Art Unit: 2673

creating a new group of points by combining the first group of scanned surface data points, and the second group of scanned surface data points; and deriving a new geometric primitive using the new group of points (Dhome, the derivation of a model object to match the scene object through the group points of the first and second surfaces; page 90, column 1, lines 15-41); such that the new geometric primitive is of the same type as the first geometric primitive and the second geometric primitive (Dhome, the model object containing the first and second surfaces having the same type; page 90, column 1, lines 41-61).

#### RESPONSE TO APPLICANT'S ARGUMENTS

Applicant's arguments filed May 27, 2005 have been fully considered but they are not deemed to be persuasive. Applicant argues that Dhome does not contain any significant discussion describing how the planar surface are derived which is not correct. Dhome's range data is the sample points of the range finder, which measures directly the 3D coordinates for recognition of different surfaces (Dhome, page 88, column 1, lines 21-30, column 2, lines 43-45). Given the coordinates of the samples within the 3D space, one can define the plane surfaces contain these sample; e.g., the coordinates of three non-linear sample points will define a specific plane surface (see also in the references cited in Dhome, page 88, column 1, lines 21-30, column 2, lines 43-45). The crucial teaching of Dhome related to the claimed invention is its recognition or derivation of a geometrical object based on the combination of individual component's sample points forming the object. Dhome derives or recognizes a

Art Unit: 2673

polyhedron based on a combination of the samples of its individual plane surfaces through a clustering algorithm (Dhomes, page 90, column 1, lines 15-18).

For claim 17, Applicant argues "Dhome is focused on the very different issue of recognizing and locating polyhedra object, as opposed to dealing with the challenges of actual data to generate the underlying primitive objects themselves." As argued above, Dhomes derives each individual plane surface of a polyhera object based on their 3D samples (Dhome, page 88, column 1, lines 21-30, column 2, lines 43-45); then based on a combination of these samples, through a clustering algorithm, Dhomes derives the polyhedra object forming by the derived plane surfaces (Dhome, page 89, column 2, lines 50-61). Accordingly, the claimed invention as represented in the claim 17 does not represent a patentable distinction over the art of record.

For claims 21 and 22, Applicant amends the claims to show a new group points formed by a combination of the first two group points which is similar to Dhomes' cluster points formed by a combination of all samples of each individual plane surfaces (Dhomes, page 90, column 1, lines 15-18). Applicant argues "Dhome is focused on the very different issue of recognizing and locating polyhedra object, as opposed to dealing with the challenges of actual data to generate the underlying primitive objects themselves." As argued above, Dhomes derives each individual plane surface of a polyhera object based on their 3D samples (Dhome, page 88, column 1, lines 21-30, column 2, lines 43-45); then based on a combination of these samples, through a clustering algorithm, Dhomes derives the polyhedra object forming by the derived plane surfaces (Dhome, page 89, column 2, lines 50-61). Accordingly, the claimed invention

Art Unit: 2673

as represented in the claims 21 and 22 does not represent a patentable distinction over the art of record.

Claim 18 adds into claim 17 "the first geometric primitive and the second geometric primitive are different parts of a single object" (Dhome, the first and second surfaces are different parts of the model object; page 89, column 1, lines 10-40).

Claim 19 adds into claim 17 "deriving a third geometric primitive such that the third geometric primitive references a third group of scanned surface data points from which the third geometric primitive was derived" (Dhome, the model objects 1 and 3 in figure 5 are derived with more than two scanned planes); "wherein the creating the new group points includes combining the third group of scanned with the first group of scanned surface data points, and the second group of scanned surface data points" (Dhome, the new group points of the whole object models; e.g., model 3) ; and "wherein the deriving the new geometric primitive using the new group of points, is such that the new geometric primitive is of the same type as the first geometric primitive and the second geometric primitive and the third geometric primitive" (Dhome, page 89, column 2, lines 50-61).

Claim 20 adds into claim 19 "the first geometric primitive and the second geometric primitive and the third geometric primitive are different parts of a single

Art Unit: 2673

object” (Dhome, the object model 3 in figure 5 containing the first, second, and third surfaces having the same type; page 90, column 2, lines 22-30).

As per claim 21, Dhome teaches the claimed “method for merging two geometric primitives of the same type to form a single geometric primitive of the same type, wherein the two primitives represent portions of a single object and wherein each primitive was derived from a group of points using a fitting process” (Dhome, the construction of a model based on the data points of the two plane surfaces; page 88, column 2, lines 4-26), said method comprising:

creating a new group of points by combining the points used to originally fit each of the two primitives; fitting the new geometric primitive using a fitting technique and the new group points to form a single new geometric primitive of the same type to replace the two original primitives (Dhome, the derivation of a model object to match the scene object through the group points of the first and second surfaces; page 90, column 1, lines 15-41); and wherein the two primitives represent different portions of a surface of the same object (Dhome, the first and second surfaces are different parts of the model object; page 89, column 1, lines 10-40), the new geometric primitive represents the surface of the object which includes the different portions of the surface represented by the two primitives, and a portion of the surface not represented by the two primitives (Dhome, the model object containing the first and second surfaces and some other surfaces not represented by the scanned points of the first and second planes; page 90, figure 4; column 1, lines 41-61).

As per claim 22, Dhome teaches the claimed "method for merging two geometric primitives of the same type to form a single geometric primitive of the same type, wherein the two primitives represent portions of a single object and wherein each primitive was derived from a group of points using a fitting process" (Dhome, the construction of a model based on the data points of the two plane surfaces; page 88, column 2, lines 4-26), said method comprising:

creating a new group of points by combining the points used to originally fit each of the two primitives; and fitting the new geometric primitive using a fitting technique and the new group points to form a single new geometric primitive of the same type to replace the two original primitives (Dhome, the derivation of a model object to match the scene object through the group points of the first and second surfaces; page 90, column 1, lines 15-41); such that the new geometric primitive is of the same type as the first geometric primitive and the second geometric primitive (Dhome, the model object containing the first and second surfaces having the same type; page 90, column 1, lines 41-61) wherein a first primitive of the two primitives is referenced to a first set of points which are part of the group of points (Dhome, a first plane surface of the scene local geometrical pattern; figure 2 and page 88, column 2, lines 43-52; the derivation of the first plane; page 89, column 1, lines 10-21); and wherein a second primitive of the two primitives is referenced to a second set of points which are part of the group of points (Dhome, a second plane surface of the scene local geometrical pattern; figure 2 and page 88, column 2, lines 43-52; the derivation of the second plane; page 89, column 1,



Art Unit: 2673

lines 10-21); and in response to a merging request the fitting the new geometric object is performed using the first set of points and the second set of points (Dhome, page 89, column 2, line 62 to page 90, column 1, line 59) .

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu K. Nguyen whose telephone number is (571) 272 7645. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, bipin Shalwala can be reached on (571) 272 7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2673

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu K. Nguyen  
September 1, 2005

  
**PHU K. NGUYEN**  
**PRIMARY EXAMINER**  
**GROUP 2300**